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LAND USE AND ENVIRONMENTAL PROTECTION

AN OVERVIEW FOR ADDRESSING ENVIRONMENTAL PROBLEMS RESULTING FROM LAND USE PRACTICES IN THE UNITED STATES

NATIONAL YOUTH ADVISORY BOARD, WASHINGTON, D.C.

1976

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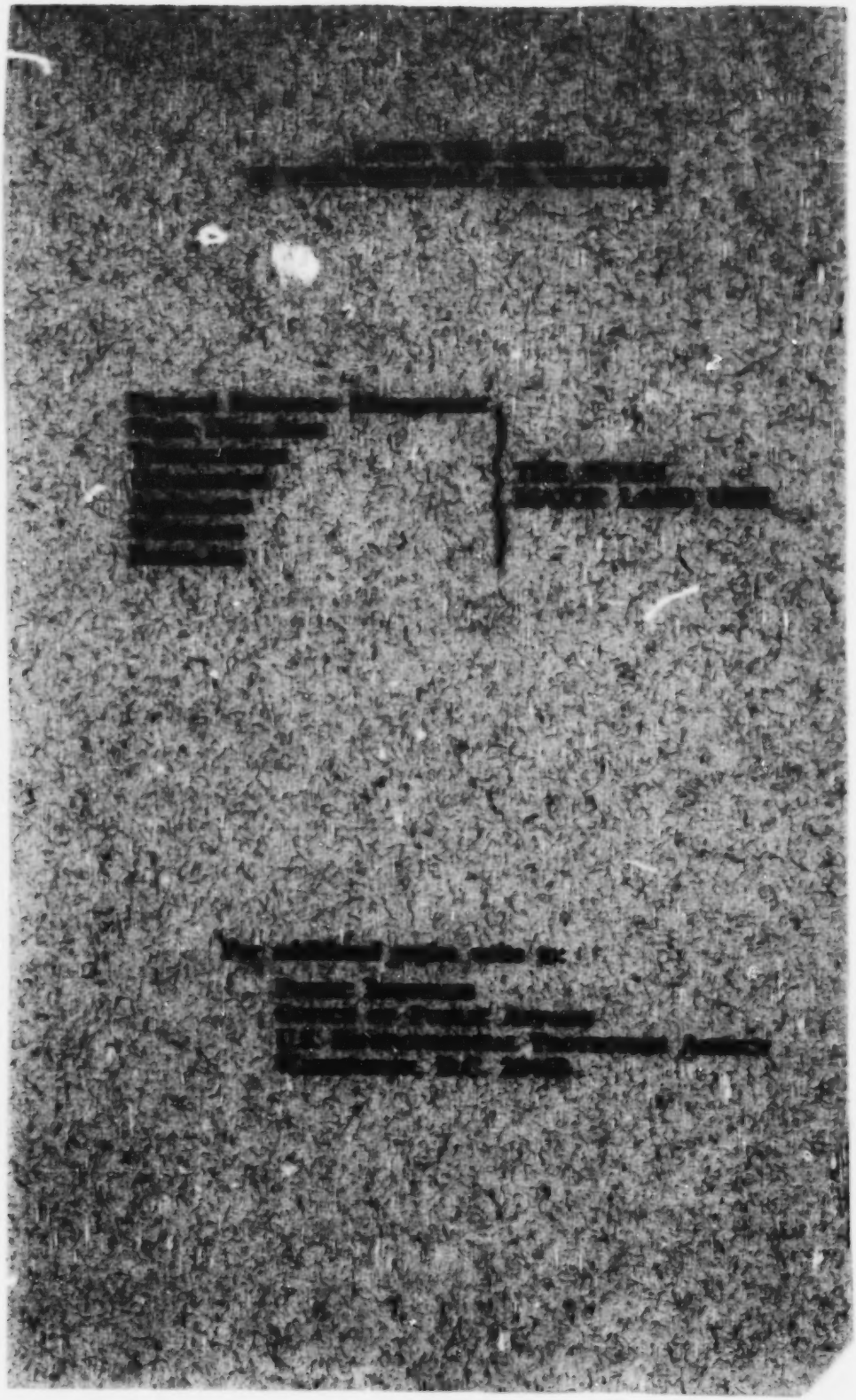

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LAND USE AND ENVIRONMENTAL PROTECTION

An Overview For Addressing Environmental Problems Resulting From Land Use Practices In The United States

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REPORT
to the
ENVIRONMENTAL PROTECTION AGENCY

This Report was done under the auspices of the Youth Advisory Board, an advisory body to the Administrator of the U. S. Environmental Protection Agency. The content is advisory in nature and does not reflect EPA policy.

By the
NATIONAL YOUTH ADVISORY BOARD

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FOREWORD

Land use used to be viewed as a problem of limited concern. Today we realize that land use issues lie at the heart of many of the most critical environmental decisions facing the Nation, whether they be air quality implementation plans, decisions on where to locate large-scale energy facilities, policies for use in our public lands, how best to manage the national parks and forests, seasonal home subdivisions in the mountains and along the coasts, or problems of urban encroachment on valuable natural areas. In short, land use has developed as one of our most serious environmental problems.

There are a number of reasons for this worth mentioning. First, land use issues are often very complex and often call for value judgments related to acceptable degrees of development and acceptable levels of mitigation of adverse impacts. The effects of land use decisions are widespread throughout the range of environmental concerns, including pollution, crowding, loss of wildlife and natural cover, and nearly any other issue you can think of; in short, land use issues require an extraordinary degree of understanding of system interrelationships and ecological balance.

Second, the job of institution-building for better land use involves the difficult task of reforming an existing and complicated structure of sometimes overlapping often fragmented decision-making processes. Developing EPA's air and water pollution programs and other areas of environmental concern was somewhat easier because there were fewer governmental entities to deal with and less diffusion of institutional commitment to those programs' goals. When we look at land use, however, we encounter an often mind-boggling array of decision bodies, each with its constituency, each with its interests and requirements and regulations and sense of self-preservation. That makes change harder to accomplish.

Finally, the kind of basic reform in our attitudes toward land use which is required to meet the challenge of development and preservation pressures in our country today necessitates a reexamination of some of our most deep-seated values regarding the private use of land and the public welfare. It is not radical to undertake this reevaluation; indeed it is in the American spirit to constantly question and reform and renew our institutions to make them more responsive to changes in public attitudes.

It was in this spirit that the Youth Advisory Board to the Environmental Protection Agency initiated this Land Use Survey. More than 100 young people participated in the project representing all ten EPA regions. This publication is the summary of ten regional studies, 25 specific case histories and a national over-

view of land use. It reflects the thinking of the participants. While EPA has not formally approved the recommendations put forward by the Youth Advisory Board, the agency will use this Land Use Survey as it continues to explore this most serious environmental problem.

I hope the study will prove to be useful to others who undertake similar investigations and I am personally grateful to all of those whose efforts over the last two years made its publication a reality.

RUSSELL E. TRAIN
Administrator

The use of land determines environmental quality.

INTRODUCTION

The Environmental Protection Agency commissioned the National Youth Advisory Board (NYAB) to undertake a national land use study in November 1971 pursuant to a recommendation of the Board. The approval of the recommendation and the assignment of the task to the Board reflected the Agency's interest in the relationship between land use and environmental protection and its interest in exploring an holistic approach as a method of solving environmental problems. Over the next two years more than 100 young people from every part of the country were involved in research and the preparation of the Regional and the National reports. The report which follows attempts to take a comprehensive overview of land use issues in the United States and to bring the responsibilities and goals of the Environmental Protection Agency into the perspective of land use.

Following Agency approval in November 1971, the NYAB established a Land Use Task Force to develop a study outline. In February 1972 the Task Force met in Denver, Colorado,to finalize the outline and assign tasks for the next step. The Task Force continued research during the rest of the winter and drew plans for Regional Study Teams in their regions. Authorization was obtained to assign 40 of the Agency's summer interns to the project under the direction of a Study Team Leader in each Region and the Study Director at Headquarters in Washington. Task Force Members continued to participate as a National Board of Directors and some of the individuals either worked on the Study Teams or led them.

Upon completion of research investigations at the Regional level, the study groups submitted Regional Reports accompanied by a total of 25 case studies to Headquarters. There an Editorial Board was formed under the leadership of the Study Director. The case studies ranged from the examination of land use problems inherent in urban development in New York, Philadelphia, and Marion County, Oregon, to analyzing the role of the States in land use planning and control in New England, the Midwest and the Rocky Mountain States. Strong emphasis in research was given to the Federal impact on land use by the Forest Service, Army Corps of Engineers, Bureau of Land Management, Soil Conservation Service, Agricultural Stabilization and Conservation Service, and the National Park Service (policies and practices in the Rocky Mountain States). Some critical environmental areas and the detailed needs for protecting them were identified in California, Maine, Georgia, Texas and Louisiana.

The Headquarters research staff, meanwhile, had investigated the relationship between land use and environmental quality and

examined governmental and private attitudes, policies and programs which influence those relationships. The Headquarters team also examined the potential of land use planning and management as methods for environmental protection and problem solving. The Editorial Board worked through February 1973 compiling information, writing and doing additional research for the National Report which focused particularly on EPA and recommendations as to possible involvement in land use for the Agency.

An EPA Land Use Council, with representatives from the major program offices gave advice to and received progress reports from the YAB Task Force. An Inter-Agency Land Use Task Force, with representatives from the Secretary's Offices of several Federal Departments, was established jointly with the Office of Regional Planning, Department of the Interior, and served a role similar to that of the EPA Council. Members of both of these groups served as resource individuals for those conducting the research.

This paper is an attempt to summarize, in general terms, the YAB study. It outlines some conclusions and recommendations in the following areas:

- Public and private attitudes toward land and its use,
- Shortcomings of traditional land use planning,
- Impact and role of governmental programs and policies on land use, and
- Relationship between land use and environmental quality: What it means for EPA.

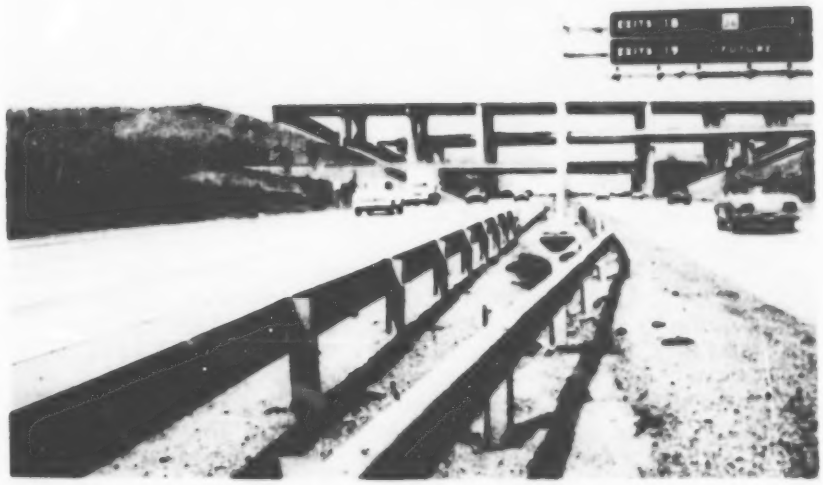
A presentation was made at the end of May to senior agency officials and a final presentation was made to the Administrator in November 1973.

As noted on the opening page, this report does not reflect the views of the Agency. Rather it reflects the best thinking scores of young people and those whose views influenced them as they researched and added to the fund of knowledge most had acquired as active participants for two and often more years in the environmental movement. Their result is an independent assessment of the situation. The assets which they brought to this effort included a strong personal commitment, a lively intelligence, and a fresh perspective. Their shortcomings at the outset were a lack of experience with the day-to-day operations of government. This soon changed and the report reflects the experience acquired in dealing with EPA and other governmental agencies at all levels.

The shortcomings of the past were not reflected in the final report. Of primary importance to the reader is the focus of the report. The YAB decided upon the development of an overview. Lack of perspective on land use issues among those interviewed initially represented the chief concern of those doing the work. Quite early in the project, providing that perspective became the goal of the study.

What follows is in many ways an Introduction to the consideration of the Land Use Issue. The Studies (including the case studies) formed the underpinning for many of the general statements made. As each Regional Study was conducted for a specific region, however, no attempt has been made to assemble them between two covers.

As of the date of publication, several of the Recommendations have been accepted by the Agency; these include developing greater awareness among Agency personnel of the land use ramifications of their program assignments, the examination of EPA's legislative authorities for land use implications. Additionally, a senior level group within the Agency has been formed to consider the Agency's programs and policies. The Land Use Task Force has the goal of making proposals for change consonant with land use considerations. Finally, publication of this Report was itself a recommendation. Other recommendations are under consideration and may be implemented at some future date.



Each year 130,000 acres of agricultural land are paved over for highways and airports.

II. The Problem

Land is being developed and used more intensively and extensively than ever before in the history of the United States. Uncontrolled and unregulated use of land is creating irreversible environmental degradation in many areas. The extent of land-related problems is demonstrated by the following data:

Land-Related Problems in the United States

- 4 billion tons of sediment are washed into streams annually as a result of land use or misuse.
- 730,000 acres of agricultural land are annually consumed by urban sprawl.
- 130,000 acres of rural land are annually paved over for airports and highways.
- 300,000 acres of rural land are consumed annually for reservoirs and flood control projects.
- 1,687,288 acres of wildlife habitat have been destroyed by surface mining.
- 281,116 surface acres of water have been adversely affected by surface mining.
- 3,187,825 acres of land have been disturbed by surface mining.
- 17,197,531 acres of wetlands have been destroyed in seven States alone (45.7 percent of the wetland area of Arkansas, California, Florida, Illinois, Indiana, Iowa, and Missouri).
- 32 million tons of fertilizer, 235,000 tons of insecticides, and 90,000 tons of herbicides are applied annually to the land.
- 25 million tons of logging debris are left in forests every year.
- 4.1 million acres of forested wetlands were cleared and drained for soybean production in the lower Mississippi valley and southern Florida from 1950-69.
- 4 million acres of right-of-way are traversed by over 300,000 miles of overhead transmission lines.
- 1 billion (approximately) human equivalents of waste are produced by domestic animals in confined feeding areas.

- 1 million (approximately) acres of forests are clear-cut annually.
- 4 billion tons of raw materials are consumed annually in U.S. production, most of which are eventually disposed of as waste on the land.
- Millions of tons of dredge spoil, industrial sludge, fly ash, and sewage sludge are land-disposed every year.

Our intensive and consumptive use of the land is expected to escalate dramatically in the ensuing decades. In the next 27 years, in fact, all that has been built in the history of this Nation will have to be duplicated. That is, the equivalent of every school, pipeline, fire station, powerplant, office building, shopping center, factory, dam, church, barn, and highway that has been built during our first 200 years will have to be matched to accommodate the market demands projected for population levels by the year 2000. Unless some rigorous thought goes into how and where this expansion is to take place, there will be drastic environmental consequences adversely affecting this Nation and generations yet unborn.

Future Projections for Land Use in the United States

- 19.7 million acres will be consumed by urban sprawl by 2000—an area equivalent to that of the States of New Hampshire, Vermont, Massachusetts, and Rhode Island.
- 3.5 million acres will be paved over for highways and airports by 2000.
- 7 million acres will be taken from agricultural use for recreation and wildlife areas by 2000.
- 5 million acres will be taken from agriculture for public facilities, second-home development, and waste control projects by 2000.
- 492 power generation stations will be built by 1990, many of them requiring cooling ponds of 2,000 acres or more.
- 2 million acres of right-of-way will be required by 1990 for 200,000 additional miles of power lines.

The land use problem is compounded by the absence of an adequate mechanism to deal with it. Unlike air and water pollution, land pollution and the consumptive use of land cannot be corrected with present technology. Wilderness cannot be manufactured, nor can a salt marsh be created, nor can prime agricultural land be unsubdivided. Assaults on the land therefore can be much more lasting and serious than assaults on air and water quality.

Some of the factors which call for responsible leadership and direction are as follows:

Factors Complicating the Land Use Problem

- There is no national land use policy to address the Country's anticipated growth.
- Although local land controls have failed in the past to permit growth consistent with the protection of environmental quality, there is presently no mechanism to take their place.
- Governmental policies are made, legislation enacted, and programs funded with little regard as to how they affect land use and influence development patterns.
- Local land use decisions can have regional or even national impact on the environment.
- Many land use decisions represent an irretrievable use of the land resource and create irreversible environmental damage.
- Technological man has the resources and energy available to radically alter critical environmental areas and unique ecosystems which have taken aeons to evolve.

Many land use decisions represent an irretrievable use of the land resource.

Wilderness—a use of land that maintains natural biological and physical cycles, and provides man with an aesthetic resource.

III. Public and Private Attitudes Toward Land and its Use

Fundamental to all of the abuses and misuses of the land is the attitude with which Americans view land. Traditionally, land has been viewed as a commodity—something to be bought, sold, and developed for profit—rather than as a resource to be wisely managed and protected. Use of the land has been a matter of expediency and the question of propriety has seldom been raised even over the most abusive land use practices.

This attitude originated in the common-law tradition of land ownership. The concept was reenforced in early America and is so deeply woven into the attitudes of this Nation that it still governs our public and private land use decisions.

Basic Factors Shaping our Land Use Attitudes

THE PIONEER ETHIC, Nature was seen as something to be challenged and conquered.

THE MYTH OF SUPERABUNDANCE, Land and natural resources were seen as being limitless.

THE LOCKEAN PRINCIPLE OF LAND OWNERSHIP, Man had the right to do what he wanted with his own land.

Today, we know differently. Man's survival depends upon his living in harmony with nature. Our resources are not limitless.

Man's use of the land without regard to the health and welfare of others and to the environment is now being strongly challenged. Even with these new realizations, however, our actions still reflect outdated attitudes. More people with more money, enjoying more mobility and more leisure time, producing and consuming more each year, represent our individual and collective aspirations. Yet, these goals require ever-increasing quantities of land. Critical environmental areas are being lost, scenic areas degraded, coastal areas developed, and prime agricultural land converted into shopping centers, housing tracts, and mounds of overburden.

Development and intensive use of the land resource will continue in a haphazard fashion until a national land use policy is established. Governmental legislation and regulations, however, cannot accomplish meaningful goals unless there is a dramatic change in the attitude with which Americans view the land. Leadership in this area is necessary by Federal, State, and local government, as well as the private sector.

A new interpretation of the "taking" clause of the Constitution would be a significant step in realizing a new land ethic as well as allowing for more rational land use planning and management. The Fifth Amendment which states 'private property shall not be taken for public use without just compensation,' can be a barrier to protecting wetlands, coastal areas, prime agricultural land, aquifer recharge zones, mountain slopes and wilderness areas from abusive development. Public ownership to provide parks and open space and to preserve critical environmental areas and to maintain regional ecological stability must be actively pursued.

Citizens in this country must adopt the attitude that the land which supports all human life belongs to all mankind—not just to those few who can afford to purchase little pieces for themselves. Those who can afford to buy 'pieces of America,' must view ownership as a trust for proper use of the land. Those rights should not permit serious degradation of environmental quality.

Local land use decisions frequently have an areawide, State, or even national impact on the environment and our natural resources. It is time to change some of the outdated attitudes and legal concepts which govern our land use decision making and prevent public and private institutions from effectively dealing with land use problems. The new land ethic must stress nonconsumptive use of land and encourage greater individual involvement in the land use planning process. In short, land must be viewed as a valuable resource to be wisely managed and protected rather than a commodity to be carelessly exploited and misused.

IV. Shortcomings of Land Use Planning

Over the past 50 years, land-related problems resulting from urban growth and industrial expansion have been dealt with through the planning process. At present several bills before the Congress stress this approach. The bill most likely to receive Congressional approval, S. 268, Land Use Policy and Planning Assistance Act, has recently been passed by the Senate. This bill requires the States to:

> . . . develop and implement State land use programs to coordinate Federal programs and policies which have a land use impact, to coordinate planning and management of Federal lands and planning and management of adajcent non-Federal lands . . .

The Task Force strongly supports the enactment of this legislation. It will alleviate some of the problems that land use planning has faced and should reduce duplication and contradiction of those Federal programs implemented by the States.

In the past land use planning and public policy planning have frequently been ineffective in preventing land misuse or protecting environmental quality. These shortcomings stem from three basic reasons:

- Inadequate consideration of the natural environment in the planning process.
- Failure to take a comprehensive approach.
- Inadequate implementation of plans.

Inadequate Consideration of Environmental Factors in the Planning Process

Traditional land use planning has taken the zoning approach. Various urban uses—residential, industrial, and commercial—are isolated from each other to reduce nuisances and to protect human health, safety, and welfare. Although there are examples of planning decisions' being based on environmental criteria, for the most part, protection of environmental quality and finite resources has not been fundamental to the planning process. Ignoring physical and ecological factors has resulted in property damage and destruction of environmental quality.

Problems Arising From Ignoring Environmental Factors

- Untreated sewage being discharged into receiving waters during periods of heavy rainfall because of combined sewers.
- Property loss from development on flood plains.
- Siltation of reservoirs from poor soil managament practices.
- Pollution and depletion of groundwater supplies from development on aquifers and their recharge zones.
- Increase in frequency and severity of floods from extensive development in watershed areas, clear-cutting practices and channelization programs.
- Destruction of wetlands by the disposal of solid wastes in land fills.
- Loss of agricultural land to urban sprawl.
- Air pollution resulting from poorly designed urban transportation systems.
- Property damage from building in active geologic zones.
- Destruction of the natural environment by recreational developments.

Failure to Take a Comprehensive Approach

The second shortcoming of the planning process is its single-purpose nature. The object of single-purpose planning, for such things as highways, sewers, airports and water supply systems, is primarily to get the job done for the single purpose. Highways, for example, are planned to facilitate movement from urban center to urban center. Ample consideration is not always given to the dislocation of people, the disruption of the natural environmental, and the stimulus to secondary development.

Although the goal of planning is usually to enhance the quality of life, it is frequently not realized. The lack of coordination, the absence of analyzing secondary impacts, and the failure to recognize the synergisms involved has led to degradation of the human environment. Table A briefly outlines some of the problems resulting from single-purpose planning.

TABLE A

Problems Arising from Single-Purpose Planning

Single Purpose of Plan	Resulting Problems
Highway Transportation	*Primary** • Air pollution • Noise pollution • Congestion *Secondary*** • Induced growth, urban sprawl, strip development, leap-frogging • Restriction of transportation alternatives • Socio-cultural impacts • Relocation of people
Water Resource Management	*Secondary* • Environmental impacts, loss of aesthetic values • Ecological costs, control of natural waterways, loss of wildlife habitat • Stimulated development around reservoirs • Water quality problems associated with impoundments due to increased retention time
Airport Placement	*Primary* • Air pollution • Noise pollution • Accidents and injury *Secondary* • Development pressures, industry, housing • Municipal wastes • Industrial wastes
Sewage Treatment Facilities	*Primary* • Water quality problems associated with impoundments due to • Problems of sewage sludge disposal • Aesthetic problems—odor *Secondary* • Determinant of urban growth, urban sprawl accompanied by air and noise pollution, congestion, placement of key facilities • Inflation of land values, encouraging farmers to sell or subdivide their land • Factor in rezoning or upzoning for higher densities

* Primary, those problems that are of immediate environmental concern—related to health and safety.

** Secondary, those probems which have a general environmental impact—related to the consumptive use of the land or the deterioration of ecological stability.

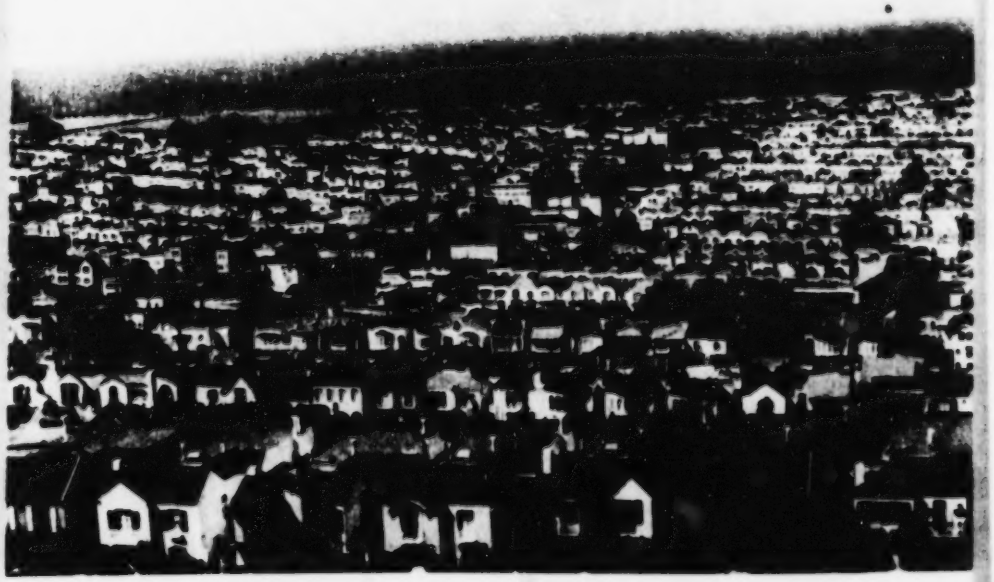
Failure To Have Plans Adequately Implemented

The third basic limitation of the current land use planning process is the absence of adequate implementation of plans. All too frequently, local communities have considered it necessary to upzone, grant exceptions, and yield to outside pressures to alter well-intended plans.

Reasons for Implementation Failures

- Lack of understanding of the need for land use planning; and how it relates to community, State and national goals.
- Economic pressures for development, combined with a land-based tax structure.
- Lack of centralized planning and implementation authorities.

Unless land use planning is a comprehensive effort, including environmental as well as economic and social considerations, it will become just another form of single-purpose planning, replete with all its inherent shortcomings.



Agricultural land is being lost at a rate of 730,000 acres annually to urban sprawl.

V. Rejuvenation of the Planning Process

To eliminate some of the problems inherent in the traditional approach to land use planning, the Task Force recommends the initiation of *metaplanning.** Metaplanning represents planning at a level of complexity beyond that which has to date, been referred to as "comprehensive" planning. Metaplanning is quality-of-life planning. It is an attempt to recognize and to deal with the fact that the whole is more than the sum of its parts.

Although the expertise does not yet exist that would permit complete implementation of metaplanning, it is important that steps be taken that will lead to eventual implementation of this process. Action should be taken in the three following areas:

- Impact assessment.
- Jurisdictional cooperation.
- Functional integration.

Impact Assessment

The first of the basic approaches of metaplanning, impact assessment, is defined as the ability to predict and identify the synergisms of major programs, policies, and practices of the public and private sectors on the environment as well as on the society and economy. This entails identifying and dealing with all significant casual factors at the macroscopic level. Regarding land use planning and the environment, it requires establishing the land carrying capacity, and then restricting use so that it will not exceed that natural capacity.

There is a need to establish an environmental impact assessment process at the State and local level similar to the environmental impact statement process established at the Federal level by the National Environmental Policy Act. The YAB Land Use Task Force calls for such a mechanism to be established.

*Meta- meaning "a later, or more highly organized or more specialized form of; more comprehensive." The term metaplanning is being used in place of "true comprehensive planning" because that term has been misapplied too frequently in the past.

Jurisdictional Cooperation

Metaplanning requires a hierarchal arrangement of local, areawide, State, and Federal planning functions. Centralized planning authorities with implementation abilities are required to address the greater-than-local impact of local decisions, and the problems of duplication. The planning process should be initiated at the local level, with public participation, and continue up through the Federal level, where national goals and priorities could be established.

Functional Integration

An interdisciplinary approach to planning such development determinants as transportation, infrastructure, sewers, and housing tracts may prevent haphazard development from taking place. The Connecticut plan for multi-functional approaches to air, water, solid waste, and land use programs exemplifies interdisciplinary planning.

Through implementation of metaplanning and conscious manipulation of land use determinants, it is conceivable that developmental patterns can be upgraded, and the type and intensity of land use predetermined. Concurrently, the environmental impact of this Country's growth and development could be minimized. This process must begin by evaluating the impact of all our activities and actions on land use.

Areawide Residuals Management: EPA's First Step to Metaplanning

Pollution abatement is, at best, after-the-fact control of environmental contamination. In stressing this abatement approach, the Environmental Protection Agency has been dealing with environmental problems in a segmented manner, by dividing them into separate categories: air, water, solid waste, radiation, pesticides, and noise. The result has been to trade one pollution problem for another, with the ultimate recipient being the land. Wastes formerly going up the stack or into the water is now being relegated to the land.

Air quality control, for example, has been found to create numerous other environmental problems. Specifics cited by the study group in Region X (Pacific Northwest) include:

- Restrictions on the burning of slash have greatly increased the danger of forest fires.
- Prevention of the dumping of pulp mill sulfite wastes has created severe air pollution and solid waste disposal problems.
- A ban on the burning of grain stubble has resulted in an increased rodent population by greatly increasing available food.

The YAB Task Force recommends that an areawide residuals (waste) management program be undertaken that would take into account:

- The pollution trade off problem now creating problems for maintaining land quality.
- The need for pollution *prevention* (through land use planning and management) as well as pollution abatement techniques.
- The need for impacts of pollution control and land use determinants to be coordinated at the areawide or regional level.

The areawide residuals management process should be established by the States and provide integrated waste (residuals) management for all relevant aspects of air, water, solid waste, pesticide, radiation and toxic substance problems. This approach should conform to the State-wide land use planning process.

Existing authorities within EPA programs could establish ongoing programs with the States almost immediately. Section 208 of the Federal Water Pollution Control Act Amendments of 1972 calls for the establishment of "areawide waste treatment management agencies" and provides the funds necessary to set up the process. Three hundred million dollars is authorized over the next three fiscal years for this, nearly twice the annual total appropriated for HUD 701 Comprehensive Planning Programs, and about equal to that called for in the Land Use Policy and Planning Assistance Act. The requirements of Section 110 of the Clean Air Act of 1970 also could tie into this management process. The Act authorizes the States to establish land use controls where necessary to meet national ambient air quality standards. This process must be completed on an areawide basis in the States with more than one air quality control region. Moreover, under the complex source regulations, the states must also assess the air quality impact of any new facilities such as airports, shopping centers, and sports stadia, which are likely to generate significant automotive traffic. And under the non-degradation clause, the States must identify and prepare to protect areas where growth and development could result in violation of Federal air standards during the next 10 years. Clearly this would be completed at the metropolitan or areawide level. Other Federal activities are focused at the areawide level. Most notable are HUD's 701 Comprehensive Planning Program, the old FWPCA water basin planning, OMB's Executive Order A-95 clearinghouse review process, HEW's Regional Health Planning Program, to name the more obvious.

Unique environmental areas must be preserved for future generations.

VI. Impact and Role of Governmental Programs and Policies on Land Use

Governmental influence on and involvement in land use is far reaching. Two areas of discussion focus on this fact:

- The impact of the Federal government on land use
- The role of public institutions in land use.

The Impact of the Federal Government on land use

The policies and practices of government at all levels have a decisive impact on how land is planned for and ultimately used. Local governments' use of zoning and land taxing authority, and State agencies' planning and handling of funds, have sizable impacts on land use. The Federal Government in most cases, however, is the dominant influence in altering land uses and shaping patterns of development in the United States.

The Federal influence on land use is immense. This report concludes, first, that the extent of that impact is phenomenal; and, second, that the lack of any explicit policy to address that impact results in contradiction and duplication which create profligate land consumption and environmental degradation. This Federal influence is longstanding; Congressional action impacting land dates back over 100 years.

Some Key Federal Laws Impacting Land Use

- The 1862 Homestead Act
- The 1872 Mining Act
- The 1920 Mineral Leasing Act
- The 1934 Taylor Grazing Act
- The 1960 Multiple Use-Sustained Yield Act

The list of agencies impacting land use ranges from the Internal Revenue Service to the Bureau of Land Management. It almost defies any sort of adequate comprehensive analysis. The activities of these agencies range from building infrastructure such as highways, sewers, water projects, and airports to setting aside land in soil bank programs. They have provided an incentive for land consumption by stimulating development, investment, and speculation.

Examples of Federal Activities Affecting Land Use

- Oil depletion allowance
- Capital gains taxes
- Tax incentives on transportation of raw materials
- Government flood insurance
- Set-aside and soil bank programs
- Sewer and treatment plant construction
- Highway construction financed by the Highway Trust Fund
- Clear-cutting practices of the Forest Service
- Stream channelization by the Army Corps of Engineers and the Soil Conservation Service
- Waste reclamation projects
- Powerplant siting
- Placement of refineries
- Agricultural grazing rights
- Mineral extraction rights
- Urban renewal and new towns
- Comprehensive planning grants
- Establishment and enforcement of air and water quality standards
- Airport siting
- Loan programs and interest rates
- Placement of Federal facilities
- Defense expenditures
- Land reclamation projects

The Role of Public Institutions in Land Use

Although instituted as one of the constitutional powers reserved to the States, land use control has been gradually delegated to local governments to promote local control over rapidly expanding communities. The Federal Government has maintained a *laissez-faire* attitude toward land use regulation.

Local Government

Exclusively local control, usually through zoning, has created problems since its inception. Some of these are enumerated below:

- "Greater-than-local" impact problems are not addressed.
- Little consideration has been given to environmental amenities and continuation of ecological systems.
- Thousands of communities have "up-zoned" to expand local tax revenues.
- Available planning funds are usually insufficient at the local level.
- There is a shortage of land management skills.
- Influence of speculators, utilities, and developers are brought to bear on local officials.
- Jurisdictional disputes frustrate the implementation of plans.
- Zoning has been used to discriminate against minorities and the poor.
- Aesthetics and ecological stability for the regional or national benefit are often ignored.

State Government

Recently, some States have reasserted their preeminence over some elements of land use management, planning, and control. The persistence of problems resulting from local control have led some States to delegate powers to regional authorities as extensions of their government, while others have retained or expanded State authorities. Some examples are given below:

- Hawaii—1961. A Land Use Commission was created and assigned the task of dividing the State into agricultural, urban, rural, and conservation districts with the main purpose being to prevent the encroachment of urban development into agricultural areas.
- California—1965. Bay Area Conservation and Development Commission established to protect San Francisco Bay—1972. Coastal Zone Conservation Act establishing Regional Planning Agencies for development, planning, and implementation.
- New Jersey—1969. Hackensack Meadowland Development Commission established and authorized to issue bonds, levy assessments, collect fees, buy land, exercise eminent domain, and have final authority over planning and land use control in 21,000 acres of wetlands.
- Vermont—1970. The Environmental Control Law established that permits were required from the State for (1) subdivisions of more than 10 acres; (2) commercial and industrial development of substantial size; and (3) development above the elevation of 2,500 feet.
- Maine—1970. The State can institute control of developments over 20 acres or 60,000 square feet of industrial floor space.
- New York—1971. The Adirondack Park Agency established to submit a land use and development plan for the Adirondack mountains. Agricultural districts also established in that State to protect agricultural land from development.

- Florida, Wisconsin, Massachusetts, Connecticut and other States have recently assumed greater responsibility for land use control.

Federal Government

Because the authority for land use has traditionally rested with the States and localities, the Federal role is somewhat ambigious. Even specialists within the Federal Government are not fully cognizant of who has what authority over land use. Federal land use powers, direct or indirect, are widely dispersed among the Departments of Agriculture, Housing and Urban Development, and Interior, and the Environmental Protection Agency, to name but a few.

As a result of this dispersion, Federal program administrators—in EPA as well as in other agencies—are prone to ignore the land impact of their programs relative to those other matters for which Federal authority is well defined. Consequently, there has been no coherent policy at the Federal level to address its massive land impact.

A national policy must be established to fill the void between the Federal Government's land impact and its *de facto* role. A national perspective is also needed on issues of national significance, such as those related to the development of energy resources.

States and localities alone cannot always be expected to make the most appropriate choices. They cannot adequately assess national goals nor determine the aspirations of the American society. A national perspective is also necessary to insure that a national land use policy is consistent with national policies for growth, energy, and population; all of which must be developed simultaneously if any is to be functional. Perhaps the Domestic Council, with an appropriate staff, or a new Department of Long Term Planning (Metaplanning) and Policy Evaluation could handle the formidable but ineluctable task.

VII. The Rationale for EPA Involment in Land Use

There are three basic reasons for EPA to become more actively involved in land use considerations:

- Land use is an essential component of environmental quality.
- EPA's mandate is to protect and enhance environmental quality.
- EPA's programs and policies affect land use and development patterns.

Land Use—A Component of Environmental Quality

Environmental quality is composed of three interdependent parts —air quality, water quality, and land quality. This realization is evident in the fact that we live at the land/air/water interface. What constitutes a land use also constitutes an air use. Our dependence on water, and the fact that most of the population in this country is located on the coasts or along major waterways, illustrates the close relationship between land use and water use. Any attempt to protect environmental quality, therefore, must consist of equal consideration of land, water, and air uses.

Maintining high land quality need not be restrictive or necessarily a limitation of individual rights. It requires establishing the natural land carrying capacity and planning for development to be consistent with that capacity. Various land uses should be evaluated in terms of their impact on health and safety, ecological stability and consumptive use of the resource. Only through this analysis will it be feasible to take an holistic approach to protecting environmental quality.

The Task Force has found land use to be almost synonymous with environmental quality. Most of the environmental problems facing EPA in fact, result from the use or misuse of the land resource. Table B gives a few examples.

TABLE B

Land Uses Resulting in Environmental Problems

Land practice or use	Environmental problem
Clear-cutting	Erosion, Sedimentation, Nutrient runoff, Loss of wildlife habitat, Destruction of aesthetic values, Disruption of watersheds, Loss of recreational values.
Strip mining	Acid mine drainage, Sedimentation, Loss of farmland, Aesthetic problems, Damage to wildlife and fish habitat.
Agriculture	Feedlot and nutrient runoff, Eutrophication, Pesticides runoff, Erosion, Soil compaction, Animal waste disposal, Predator control, Salinity of irrigation return flow, Induced changes in vegetation cover, Disruption of ecological stability.
Highways and airports	Air pollution, Sedimentation, Secondary development, Noise pollution, Destruction of ecological habitats, Litter, Land disruption, High energy consumption with their use.
Powerplants	Aesthetic problems from transmission lines, Thermal discharges, Air pollution, Disposition of radioactive wastes.
Urban sprawl	Loss of agricultural land, Air pollution, Noise pollution, Street runoff, Paving over aquifer recharge zones, Disruption of ecological stability, Development on flood plains, Water pollution.
Waste disposal	Landfill of marshes and wildlife habitat, Open burning of slash, garbage, and sewage sludge resulting in air pollution, Noise problems with trash collection.

EPA's Mandate—To Protect and Enhance Environmental Quality

The Presidential Message accompanying the Reorganization Plan establishing the Environmental Protection Agency stated:

> Responsibility for anti-pollution and related programs is now fragmented among several departments and agencies, thus weakening our overall Federal effort. Air pollution, water pollution, and solid wastes are different forms of the same problem, and it becomes increasingly evident that *broad systems approaches* are going to be needed to bring our pollution problems under control. (Emphasis added.)

The "failure to perceive the environment as a totality and to understand and recognize the *fundamental interdependence of all its parts*, including man himself," was cited as a basic cause of environmental degradation. (Emphasis added.)

It is apparent that the intent of the President and Congress was to develop comprehensive approaches to environmental problems. Consistent with this intent, the YAB Land Use Task Force maintains that any comprehensive approach to pollution abatement requires proper land use planning and management.

EPA efforts to meet its mandate in the past, have focused on developing effective means of protecting human health and safety.

TABLE C

Pollution Abatement Requiring Land Use Controls*

Problem	Source
Deterioration of Water Quality	—Mining operations (acid mine drainage) —Feedlot runoff —Agricultural chemical runoff (herbicides, pesticides, and fertilizers) —Dredge spoil disposal —Sewage sludge disposal —Shoreline development
Eutrophication	—Nutrient runoff (clear-cutting and agriculture) —Construction of reservoirs (increased retention time) —Shoreline development
Sedimentation	—Soil erosion (agricultural practices) —Erosion (highway and other construction; clear-cutting) —Stream channelization
Contamination of ground water	—Deep-well disposal —Paving of aquifer recharge zones —Septic tanks and leach fields —Leaching from landfills
Noise pollution	—Airports —Highways —Heavy industry
Air Pollution	—Airborne soil (from agricultural practices) —Urban complex sources (urban sprawl, leap-frogging, strip development) —Powerplant and other facilities siting —Highway placement and design —Burning of wastes (agricultural stubble and slash; garbage) —Heavy industry (refinery siting)

* These problems are directly related to EPA's air, water and noise pollution abatement mandates.

These efforts have revolved around technological approaches to controlling major sources of air and water pollution. Although these has been moderate success with this abatement, "clean-up" approach, there are inherent limitations. The control of non-point source problems, such as sedimentation, agricultural run-off and automobile emissions, and the impact of trading on media pollution problem for another are compelling reasons for EPA to take an holistic approach to environmental protection.

Even a narrow interpretation of EPA's role, as "strictly a pollution abatement" agency, however, requires it to become involved in land use. Several examples of pollution problems that cannot be abated without land use planning and management are listed in Table C and D.

TABLE D

Environmental Protection Requiring Land Use Controls*

Problem	Source
Destruction of ecological stability	—Drainage of wetlands —Grazing practices —Landfilling of salt marshes and other wetlands —Land disposal of wastes (e.g., fly ash dredge spoil, sewage sludge) —Development on flood plains —Clear cutting —Soil depletion (by intensive use of chemicals in agriculture) —Stream channelization —Predator, insect, and weed control —Monocrop agriculture —Persistent environmental toxins
Loss of aesthetic values	—Urban sprawl (strip and leapfrog development) —Development in the coastal zone —Mineral extraction —Clear cutting —Power transmission lines —Billboards —Recreational development —Transportation development —Second home development

* These problems are among those in which EPA must become involved in order to take an holistic approach to environmental protection.

Such problems cannot be dealt with effectively in the absence of land use controls and implementation of sound environmental planning. Without ample consideration of land use, it will be considerably more difficult, if not impossible, for EPA to discharge its responsibilities.

EPA's Program and Policies—Determinants of Land Use

EPA should become more involved in land use considerations because its programs and policies influence land use patterns, which in turn affect environmental quality. Efforts to control media pollution have resulted in trading off one pollution problem for another, with land being the ultimate recipient of waste. Several environmental policies and decisions listed below indicate there will be a dramatic increase in the disposal of waste on the land:

Environmental Policies to Curtail Media (Air and Water) Pollution (Resulting in land disposition of wastes)

- Promulgation and strict enforcement of air and water quality standards.
- The 1985 "no discharge" goal.
- Restrictions on ocean dumping.
- Protection of groundwater.
- Restriction of open burning.
- Restrictions on aquatic disposal of dredge spoil.

Reduction of air pollution by installation of wet scrubbers and electrostatic precipitators creates a sludge and fly-ash disposal problem on the land or in the water. Treatment plants can purify sewage, but must later dispose of the residual sludge on the land or in the ocean. Unused pesticides and toxic materials once dumped in rivers and streams are now disposed of on the land. Municipal solid waste previously incinerated is now disposed of in landfills. Timber slash once burned now constitutes a major solid waste problem in our forests.

By failing to take a systems approach to finding solutions, and by not utilizing land use planning and management as an environmental protection device, EPA will continue to trade one pollution problem for another. Although the quality of one medium may be improved, the impact of this improvement on other media should be evaluated if EPA is to meet its mandate. In discussing trade-offs, land is also considered a medium.

In addition to the land impact and trade-off problems of EPA's policies, the Agency has a substantial impact on development in local communities. The prime source of this impact is the funding of sewage treatment plants. The construction of new plants with capacities greater than actual needs, and the expansion of existing facilities can be significant growth stimulants. The relationship of sewer construction to growth patterns is summarized as follows:

Sewers and their Relation to Sprawl

- The existence or feasibility of sewage and water treatment has frequently been the primary criterion by which local governments have decided whether an area should be rezoned for development, or whether a subdivision should be permitted.
- Because sewerage systems are generally financed through user charges, connection fees, and tax levies; the service area is made as large as possible to gain the greatest amount of revenue.
- The mere existence of sewer lines enhances the attractiveness of land for development.
- Land values inflated by the development potential, heightened by sewerage installation encourages farmers to sell or develop their land. Increased tax rates in serviced areas compounds this encouragement.
- The primary objective of local, State, and Federal officials is to provide adequate sewerage at the least possible cost. Regional systems have usually been the preferred means of accomplishing this. With the absence of land use controls, regional interceptors connecting several communities encourage development throughout the entire region.

The construction grant program is impacting land use. The resulting development leads to other environmental problems, such as; air pollution, solid waste generation, increased public service requirements, etc. This is only one example of secondary impacts of an EPA program which may have undesirable long-range environmental impacts. Other examples include areawide waste treatment planning, location considerations in State Implementation Plans (SIPs) for complex sources and new point sources, the establishment of ambient air quality standards and the position taken on solid waste treatment (disposition vs recycling).

The YAB Task Force feels that EPA could minimize the land impacts and its media pollution trade-off problems by first analyzing how its programs, standards, regulations, and policies affect land use, and then taking the steps necessary to alleviate the adverse land impacts. One of the first steps, as previously mentioned, could be the establishment of an areawide residuals management process.

VIII. Limitations on EPA Involvement in the Land Use Issue

Considering EPA's mandate to protect and enhance the environment and the influence that the use of land has on meeting that mandate, one might wonder why EPA does not have explicit land use planning and control authorities. This is due in part to the Federal attitude of *laissez-faire* toward land use regulation based on the "reservation of powers" clause of the Constitution. This attitude, combined with a general indifference to, and, in fact, ignorance of, the relationship between land use and environmental quality is reflected in the statutory authorities of EPA. It should be realized, however, that only recently has there been any widespread public concern over environmental degradation.

While EPA has little explicit authority for land use control, many provisions in its various enabling statutes require land use planning and management for their successful implementation. This implicit authority in the past has been used on a limited basis. To date, EPA involvement in the land use issue has centered around:

- Letting contracts to identify and quantify relationships between land use and environmental quality.
- Establishing mandated guidelines and regulations, particularly in the area of areawide waste management planning (Sec. 208 FWPCA) and maintenance of air quality standards (Sec. 110, Clean Air Act).
- New responsibilities for: regulation of complex sources, new point sources; the maintenance of air quality standards; water resource and waste water treatment planning; control over the siting of major facilities and nonpoint sources.

More active involvement in the land use issue and attempts to take an holistic approach to environment problems, however, have been restricted by:

- EPA's Enabling Legislation
- EPA's Organizational Structure
- EPA's Operating Philosophy

EPA's Enabling Legislation

The absence of a specific organic act establishing EPA has prevented the Agency from taking an holistic approach to meeting its mandate. This factor, combined with the Federal *laissez-faire* attitude, has minimized the Agency's willingness to include land use considerations in its day-to-day activities. Furthermore, except for amendments—the enabling legislation antedates the Agency, falls within the jurisdiction of several Committees of the Congress, and is usually single-purpose in nature. EPA's enabling authorities are largely contained in the following Acts:

- The Clean Air Act
- The Federal Water Pollution Control Act (FWPCA)
- The Resource Recovery Act
- The National Environmental Policy Act (NEPA)
- The Federal Insecticide, Fungicide, and Rodenticide Act

With the notable exception of NEPA, these authorities stress the media approach to pollution abatement rather than an intermedia approach to pollution prevention. These laws were drawn up by several Committees of the Congress, each operating under a different system of priorities; and indicate little or no consideration of their impact on each other. Furthermore, some of these Acts were originally enacted for implementation by five different agencies, each with its specific mandate, objectives, and goals. The organizational structure of the Agency reflects those Acts which were in existence when EPA was established in December of 1970.

EPA's Structure

Independent program responsibility for air, water, solid waste management, pesticides, radiation, and, more recently, noise control was established. The main Agency functions were also formulated—standards setting, enforcement, research, monitoring, and grant allocation. The activities of each of the program offices are based on a specific enabling authority. The functional offices draw their authority from the totality of the enabling legislation.

Because air, water, and land are interdependent parts of the ecosystem, any attempt to protect and enhance environmental quality requires equal attention to all three parts with coordination among them. The Task Force believes that EPA must undertake administrative realignment to permit land use considerations to be adequately addressed in the near future if land quality is to receive equal attention with air and water quality. Moreover, the YAB Land Use Task Force sees a need for an organic act for EPA in the long run, which Act would include authority for land use responsibilities.

EPA's Operating Philosophy

As previously mentioned, some of the Agency's enabling legislation includes implicit authority for land use involvement. Table E lists those sections of the Agency's enabling Acts containing such authorities.

TABLE E

Implicit Land Use Authorities

Act	Section	Subject
Federal Water Pollution Control Act Amendments of 1972	104	Development of new control methods
	105	Research and Development grants
	107	Mine Water Pollution
	201	Sewage Waste Management
	204	Limitation on sewage service
	208	Areawide waste treatment management
	209	River basin plans
	302	Special standard
	303	Water quality standards and implementation plans
	305	Water quality inventory
	314	Clean lakes
	403	Ocean dumping
	404	Dredge and fill material permits
	405	Sewage sludge disposal
Clean Air Act of 1970	110	Land use transportation controls
	309	Federal impact
Federal Insecticide, Fungicide and Rodenticide Control Act of 1972	3	Registering products
	13	Seizure because of adverse environmental effects
Solid Waste Disposal	3253	Research and demonstration
	3254(a)	Planning grants
	3254(b)	Demonstration grants
	3254(c)	Waste recovery
	3254(e)	Federal agencies
Noise Control Act of 1972	4	Federal agency jurisdiction
	4(c)(1)	Coordinate Federal programs
	4(c)(2)	Federal agencies' consultation with Administrator
	5(a)(1)	Health and welfare criteria
	5(a)(2)	Noise standards
	7	Airport and aircraft noise
	14	Research

It should be emphasized that these authorities are restricted to the medium to which the specific Act is directed. The Clean Air Act, for example, provides land use and transportation controls as they relate to air quality, rather than environmental quality in general. Additionally, because these authorities are hidden in different sections of the various bills, many EPA decision makers have been reluctant to assume initiative in the land use area. The

absence of organic legislation, including explicit land use authorities, has given rise to the general Agency attitude of: "Let's clean up the air and the water before we move into new areas."

Perhaps the chief deterrent to EPA's assuming more leadership in using land use controls for environmental protection rests with the fact that the major legislative proposals for a national land use policy have assigned the "lead agency" position to the Department of the Interior. This action has made it more palatable for EPA to assume the role of "strictly a pollution abatement" agency.

The Task Force maintains that it will be extremely difficult, to maintain even that role without aggressive attention to land use management and controls. The legal authorities listed in Table E are those which EPA should utilize to become more actively involved in land use considerations. Section 110 of the Clean Air Act and Section 208 of FWPCA are two sections in particular that authorize EPA's involvement in land use (see: Areawide Residuals Management: EPA's first step to Metaplanning).

The environment cannot be protected without proper planning and land use controls.

IX. Recommendations for EPA

It should be noted that the following are only general recommendations. Recommendations pertaining to individual EPA programs are contained in the EPA Section of the National report.

Problem 1

Present attitudes toward land and its use governs the land use decision-making process and creates severe environmental repercussions with impinge upon EPA's ability to meet its mandate.

Recommendation 1:

EPA should develop a program to encourage awareness within the Agency of:

- Land use/environmental quality relationships
- The Agency's existing land use authorities
- The impact of Agency programs and policies on land use.

Method for Implementation:

a. Refine, update and distribute YAB Land Use Report
b. Give the YAB audio-video presentation at Headquarters and the Regions.

Recommendation 2:

EPA should sensitize the general public through educational programs of the importance of developing a new land ethic.

Method for Implementation:

a. Publish a brochure on Land Use and Environmental Quality.
b. Have YAB audio-video presentation made into a film for general distribution.
c. Establish an Environmental Extension Service (EES) patterned after the Agricultral Extension Service to disseminate literature and provide technical assistance to civic groups, environmental organizations, planning agencies and the academic community.

Problem 2

EPA has not placed enough emphasis on land use, considering that land use is an essential component of environmental quality and EPA's mandate is to protect and enhance environmental quality.

Recommendation:

EPA should become more actively involved with land use considerations and deal in an holistic manner with environmental problems.

Method for Implementation:

a. An office or some centralized land use authority should be established within EPA to consolidate and coordinate efforts in the following areas:
   1. Evaluate and make recommendations to assist in minimizing EPA's adverse land use impact.
   2. Contribute to the formulation of a National Land Use Policy.
   3. Interface with other Federal agencies involved with land use decision making.
   4. Research and identify control techniques for those environmental problems that cannot be abated through conventional methods.
   5. Identify new approaches to deal with media trade-off problems.
   6. Conduct land use related research (property tax reform, environmental land trusts, etc.).

b. Seek organic legislation—an omnibus act that would enable EPA to take an holistic approach to resolving existing environmental problems and prevent degradation from occurring in the future.

Problem 3

There are numerous Federal, State and local program policies that have conflicting and adverse impacts on land use and environmental quality.

Recommendation:

EPA should become more actively involved in working with other governmental agencies at all levels, as well as with professional organizations concerned with land use planning and management, in pointing out the relationship between land use and environmental quality.

Method for Implementation:

a. EPA should encourage the use of areawide residuals management and seek to have land use planning and management initiated as a device to prevent pollution at the local level.
b. EPA should lend its expertise to the development of environmentally sound planning processes at the state level. This should include encouraging the States to initiate the metaplanning concept by centralizing all State planning functions and have them conform to the land use planning process called for in the Land Use Policy and Planning Assistance Act, S. 268.
c. At the Federal Level, EPA should seek to establish its leadership (not necessarily "the lead") in the area of land use. Agency land use expertise should be developed in order to incorporate land use impact evaluation into the Environmental Impact Statement review process. Because many Federal programs are not reviewed through the environmental impact statement process, it is necessary for EPA to establish active working relationships with key agencies whose programs have significant impact on land use.
d. EPA should push for the adoption of an environmental assessment process at the State and local level.

Problem 4

Land use planning and public policy planning have frequently been ineffective from the standpoint of preventing land misuse or protecting environmental quality.

Recommendation:

Strive for the development and implementation of metaplanning at all levels of government.

Method for Implementation:

a. Evaluate the land impact of EPA activities and seek to reduce adverse impacts.
b. Undertake the necessary research to implement metaplanning. It is necessary to improve the understanding of land use/environmental quality relationships if the metaplanning approach is to be successfully implemented. Information should be geared to:
    1. Making sound environmental decisions in the planning process.
    2. Identifying and quantifying environmental trade-offs.
    3. Providing a data base which would improve ability to identify the actions and activities involved in land use. A national census of land ownership is an important first step.

c. Work closely with the State planning agencies responsible for developing the land use planning programs required by the Land Use Policy and Planning Assistance Act that recently passed the Senate.

Problem 5

Although the Federal Government in most cases is the dominant influence in altering land use and shaping patterns of development, there is no coherent national land use policy to address this impact.

Recommendation

A national policy should be developed to fill the void between the Federal Government's land impact and its *de facto* role.

Method for Implementation:

a. EPA should help formulate a national land use policy.
b. The Administrator should suggest to the President that the Domestic Council with an appropriate staff, or a new Department of Long Term Planning (Metaplanning) and Policy Evaluation be established to implement a national land use policy and integrate it with national policies on energy, growth and population.
c. EPA should encourage each Federal Department and Agency to analyze the impact of their policies, programs and practices on land use and seek to alleviate those impacts adversely effecting environmental quality.

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And finally, to those we should have mentioned here and did not, we apologize for the oversight and trust that your commitment to the land use idea will not be lessened for it.

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1971–73

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